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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/581,859 | 06/05/2006 | Shigeto Kajiwara | 127991 | 4641 |

25944 7590 12/17/2009

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| EXAMINER | |
|---|---|
| CULLEN, SEAN P | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1795 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 12/17/2009 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/581,859 | KAJIWARA, SHIGETO | |
| | Examiner | Art Unit | |
| | Sean P. Cullen | 1795 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *08 October 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *15-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 15-18, 23-26 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Nonobe et al. (U.S. 5,929,594).

Regarding claim 1, Nonobe et al. discloses a hybrid fuel cell system (10) comprising:

- a fuel cell (20);
- an electric power storage device (30);
- a load portion (32 and 34) which consumes electric power (C8/L25-37); and
- a control portion (50) which controls an amount of electric power consumed by the load portion (abstract)
    - based on a difference between a supply electric power set value indicating an amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) and an actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46),
- wherein the control portion (50) changes the amount of electric power consumed by the load portion (32 and 34, C11/L56-C12/L7) to remove imbalance between charge and discharge (Fig. 6) of the electric power storage device (30) in the system (10) by reducing the difference between the supply electric power set value indicating an amount of electric power which needs to be supplied from the

electric power storage device (IB1, C10/L61-C11/L8) and the actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46).

Regarding claim 16, Nonobe et al. discloses all claim limitations set forth above and further discloses a hybrid fuel cell system:

- wherein the control portion (50) obtains the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) based on
    - at least a supply electric power set value indicating an amount of electric power which needs to be supplied from the fuel cell (IF1, C10/L61-C11/L8) and
    - a consumption electric power set value indicating an amount of electric power which needs to be consumed by the load portion (IT1, C10/L61-C11/L8).

Regarding claim 17, Nonobe et al. discloses all claim limitations set forth above and further discloses a hybrid fuel cell system:

- wherein the load portion (32 and 34) includes a system accessory (34), and
- the control portion (50) obtains the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8),
    - using the consumption electric power set value (IT1, C10/L61-C11/L8) including an amount of electric power consumed by the system accessory

(34, C10/L61-C11/L8).

Regarding claim 18, Nonobe et al. discloses all claim limitations set forth above and further discloses a hybrid fuel cell system:

- wherein the load portion (32 and 34) includes a drive motor (32), and
- the control portion (50) controls an amount of electric power consumed by the drive motor (32, C11/L56-C12/L7)
    - based on the difference between the supply electric power set value indicating an amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) and the actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46).

Regarding claim 23, Nonobe et al. discloses a hybrid fuel cell system (10) comprising:

- a fuel cell (20);
- an electric power storage device (30);
- a load portion (32 and 34) which consumes electric power (C8/L25-37);
- a first control portion (58) for obtaining a supply electric power set value indicating an amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8),
    - based on a supply electric power set value indicating an amount of electric power which needs to be supplied from the fuel cell (IF1, C10/L61-C11/L8) and a consumption electric power set value indicating an amount

of electric power which needs to be consumed by the load portion (IT1, C10/L61-C11/L8);

- a difference obtaining portion (52, C12/L15-22) for obtaining a difference between the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) and an actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46);
- a second control portion (80) for controlling the amount of electric power consumed by the load portion based on the difference (C12/L23-46); and
- a computing portion (54) for changing the amount of electric power consumed by the load portion (IT1, C10/L61-C11/L8) to remove imbalance between charge and discharge of the electric power storage device (30) in the system (10) by reducing the difference between the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) and the actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46).

Regarding claim 24, Nonobe et al. discloses all claim limitations set forth above and further discloses a hybrid fuel cell system:

- wherein the first control portion (58) obtains the supply electric power set value indicating the amount of electric power which needs to be supplied from the

electric power storage device (IB1, C10/L61-C11/L8),

- based on at least the supply electric power set value indicating the amount of electric power which needs to be supplied from the fuel cell (IF1, C10/L61-C11/L8) and the consumption electric power set value indicating the amount of electric power which needs to be consumed by the load portion (IT1, C10/L61-C11/L8).

Regarding claim 25, Nonobe et al. discloses all claim limitations set forth above and further discloses a hybrid fuel cell system:

- wherein the load portion (32 and 34) includes a system accessory (34), and
- the first control portion (58) obtains the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8),
  - using the consumption electric power set value (IT1, C10/L61-C11/L8) including an amount of electric power consumed by the system accessory (34, C10/L61-C11/L8)

Regarding claim 26, Nonobe et al. discloses all claim limitations set forth above and further discloses a hybrid fuel cell system:

- wherein the load portion (32 and 34) includes a drive motor (32), and
- the second control portion (80, C12/L23-46) controls an amount of electric power consumed by the drive motor (32, C11/L56-C12/L7)
  - based on the difference between the supply electric power set value indicating an amount of electric power which needs to be supplied from

the electric power storage device (IB1, C10/L61-C11/L8) and the actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46).

Regarding claim 31, claim elements "first control means for obtaining…", "difference obtaining means for obtaining a difference", "second control means for controlling…," and "computing means for changing", are means (or step) plus function limitations that invoke 35 U.S.C.112, sixth paragraph. In the instant specification, "first control means for obtaining…" is positively recited as element (11), "difference obtaining means for obtaining a difference" is positively recited as element (41), "second control means for controlling…" is positively recited as element (12), and "computing means for changing" is positively recited as element (17, [0047]).

Regarding claim 31, Nonobe et al. discloses a hybrid fuel cell system (10) comprising:

- a fuel cell (20);
- an electric power storage device (30);
- a load portion (32 and 34) which consumes electric power (C8/L25-37);
- first control means (58) for obtaining a supply electric power set value indicating an amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8),
    - based on a supply electric power set value indicating an amount of electric power which needs to be supplied from the fuel cell (IF1, C10/L61-C11/L8) and a consumption electric power set value indicating an amount

of electric power which needs to be consumed by the load portion (IT1, C10/L61-C11/L8);

- a difference obtaining means (52, C12/L15-22) for obtaining a difference between the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) and an actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46);
- a second control means (80) for controlling the amount of electric power consumed by the load portion based on the difference (C12/L23-46); and
- a computing means (54) for changing the amount of electric power consumed by the load portion (IT1, C10/L61-C11/L8) to remove imbalance between charge and discharge of the electric power storage device (30) in the system (10) by reducing the difference between the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) and the actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46).

***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 19-22, 27-30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nonobe et al. (U.S. 5,929,594) in view of Okhubo et al. (EP 1,220,413).

Regarding claim 19, Nonobe et al. discloses a hybrid fuel cell system (10) comprising:

- a fuel cell (20);
- an electric power storage device (30);
- a load portion (32 and 34) which consumes electric power (C8/L25-37); and
- a control portion (50) which controls an amount of electric power consumed by the load portion (abstract)
    - based on a difference between a supply electric power set value indicating an amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) and an actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46); and
- wherein the control portion (50) changes the amount of electric power consumed by the load portion (32 and 34, C11/L56-C12/L7) to remove imbalance between charge and discharge (Fig. 6) of the electric power storage device (30) in the system (10) by reducing the difference (IB1, C10/L61-C11/L8; I, C12/L23-46).

Nonobe et al. does not explicitly disclose:

- a filter which removes a noise component contained in the difference between the supply electric power set value indicating an amount of electric power which needs to be supplied from the electric power storage device and the actual supply

electric power value indicating an amount of electric power which is actually supplied from the electric power storage device and which outputs the difference with the noise component removed to the control portion,

Okhubo et al. discloses a filter (80a) which removes a noise component (see integrating, [0014]) to measure the charging/discharging current accurately and further the battery capacity highly precisely [0014]. Nonobe et al. and Okhubo et al. are analogous art because they are directed to controlling the charging and discharging of rechargeable batteries. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make hybrid fuel cell system of Nonobe et al. with the filter of Okhubo et al. to accurately measure the charging/discharging current and the battery capacity.

Regarding claim 20, modified Nonobe et al. discloses all claim limitations set forth above and further discloses a hybrid fuel cell system:

- wherein the control portion (50) obtains the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) based on
    - at least a supply electric power set value indicating an amount of electric power which needs to be supplied from the fuel cell (IF1, C10/L61-C11/L8) and
    - a consumption electric power set value indicating an amount of electric power which needs to be consumed by the load portion (IT1, C10/L61-C11/L8).

Regarding claim 21, modified Nonobe et al. discloses all claim limitations set forth above

and further discloses a hybrid fuel cell system:

- wherein the load portion (32 and 34) includes a system accessory (34), and
- the control portion (50) obtains the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8),
    - using the consumption electric power set value (IT1, C10/L61-C11/L8) including an amount of electric power consumed by the system accessory (34, C10/L61-C11/L8)

Regarding claim 22, modified Nonobe et al. discloses all claim limitations set forth above and further discloses a hybrid fuel cell system:

- wherein the load portion (32 and 34) includes a drive motor (32), and
- the control portion (50) controls an amount of electric power consumed by the drive motor (32, C11/L56-C12/L7)
    - based on the difference between the supply electric power set value indicating an amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) and the actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46).

Regarding claim 27, Nonobe et al. discloses a hybrid fuel cell system (10) comprising:

- a fuel cell (20);
- an electric power storage device (30);

- a load portion (32 and 34) which consumes electric power (C8/L25-37);
- a control portion (50) which controls an amount of electric power consumed by the load portion (abstract)
    - based on a difference between a supply electric power set value indicating an amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) and an actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46),
- a computing portion (54) for changing the amount of electric power consumed by the load portion (IT1, C10/L61-C11/L8) to remove imbalance between charge and discharge of the electric power storage device (30) in the system (10) by reducing the difference (IB1, C10/L61-C11/L8; I, C12/L23-46).

Nonobe et al. does not explicitly disclose:

- a filter which removes a noise component contained in the difference between the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device and the actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device, and which outputs the difference with the noise component removed to the control portion;

Okhubo et al. discloses a filter (80a) which removes a noise component (see integrating, [0014]) to measure the charging/discharging current accurately and further the battery capacity highly precisely [0014]. Nonobe et al. and Okhubo et al. are analogous art because they are

directed to controlling the charging and discharging of rechargeable batteries. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make hybrid fuel cell system of Nonobe et al. with the filter of Okhubo et al. to accurately measure the charging/discharging current and the battery capacity.

Regarding claim 28, modified Nonobe et al. discloses all claim limitations set forth above and further discloses a hybrid fuel cell system:

- wherein the control portion (50) obtains the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8)
    - based on at least a supply electric power set value indicating an amount of electric power which needs to be supplied from the fuel cell (IF1, C10/L61-C11/L8) and
    - a consumption electric power set value indicating an amount of electric power which needs to be consumed by the load portion (IT1, C10/L61-C11/L8).

Regarding claim 29, modified Nonobe et al. discloses all claim limitations set forth above and further discloses a hybrid fuel cell system:

- wherein the load portion (32 and 34) includes a system accessory (34), and
- the control portion (50) obtains the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8),
    - using the consumption electric power set value (IT1, C10/L61-C11/L8)

including an amount of electric power consumed by the system accessory (34, C10/L61-C11/L8).

Regarding claim 30, modified Nonobe et al. discloses all claim limitations set forth above and further discloses a hybrid fuel cell system:

- wherein the load portion (32 and 34) includes a drive motor (32), and
- the control portion (50) controls an amount of electric power consumed by the drive motor (32, C11/L56-C12/L7)
    - based on the difference between the supply electric power set value indicating an amount of electric power which needs to be supplied from the electric power storage device (IB1, C10/L61-C11/L8) and the actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46).

Regarding claim 32, modified Nonobe et al. discloses a hybrid fuel cell system (10) comprising:

- a fuel cell (20);
- an electric power storage device (30);
- a load portion (32 and 34) which consumes electric power (C8/L25-37);
- a control portion (50) which controls an amount of electric power consumed by the load portion (abstract)
    - based on a difference between a supply electric power set value indicating an amount of electric power which needs to be supplied from the electric

power storage device (IB1, C10/L61-C11/L8) and an actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device (I, C12/L23-46),

- a computing means (54) for changing the amount of electric power consumed by the load portion (IT1, C10/L61-C11/L8) to remove imbalance between charge and discharge of the electric power storage device (30) in the system (10) by reducing the difference (IB1, C10/L61-C11/L8; I, C12/L23-46).

Nonobe et al. does not explicitly disclose:

- a filter which removes a noise component contained in the difference between the supply electric power set value indicating the amount of electric power which needs to be supplied from the electric power storage device and the actual supply electric power value indicating an amount of electric power which is actually supplied from the electric power storage device, and which outputs the difference with the noise component removed to the control portion; and

Okhubo et al. discloses a filter (80a) which removes a noise component (see integrating, [0014]) to measure the charging/discharging current accurately and further the battery capacity highly precisely [0014]. Nonobe et al. and Okhubo et al. are analogous art because they are directed to controlling the charging and discharging of rechargeable batteries. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make hybrid fuel cell system of Nonobe et al. with the filter of Okhubo et al. to accurately measure the charging/discharging current and the battery capacity.

***Response to Arguments***

5. Applicant's arguments with respect to claims 15-32 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Cullen whose telephone number is 571-270-1251. The examiner can normally be reached on Monday thru Thursday 6:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on 571-272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. P. C./
Examiner, Art Unit 1795

/Robert Hodge/
Primary Examiner, Art Unit 1795